CLAIMS

1. A urethane composition comprising: (A) at least one compound containing at least one isocyanate group; and (B) a carbinol-functional silicone resin comprising the units:

$$(R^{1}_{3}SiO_{1/2})_{a}$$
 (i)

$$(R^2_2SiO_2/2)_b$$
 (ii)

$$(SiO_4/2)_d$$
 (iv)

wherein R^1 and R^2 are each independently a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms, an aryl group, a carbinol group free of aryl groups having at least 3 carbon atoms, or an aryl-containing carbinol group having at least 6 carbon atoms, R^3 is an alkyl group having from 1 to 8 carbon atoms or an aryl group, a has a value of less than or equal to 0.6, b has a value of zero or greater than zero, c has a value of greater than zero, d has a value of less than 0.5, and the value of a + b + c + d = 1, and with the proviso that when each R^2 is methyl the value of b is less than 0.3; where the mole ratio of carbinol groups to isocyanate groups is from about 0.8:1 to 1.2:1.

2. A urethane composition comprising: (A) 100 weight parts of at least one compound containing at least one isocyanate group; (B) 3-300 weight parts of a carbinol-functional silicone resin comprising the units:

$$(R^{1}_{3}SiO_{1/2})_{a}$$
 (i)

$$(R^2_2SiO_2/2)_b$$
 (ii)

$$(R^3SiO_3/2)_c$$
 (iii) and

$$(SiO_{4/2})_d$$
 (iv)

wherein R^1 and R^2 are each independently a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms, an aryl group, a carbinol group free of aryl groups having at least 3 carbon atoms, or an aryl-containing carbinol group having at least 6 carbon atoms, R^3 is an alkyl group having from 1 to 8 carbon atoms or an aryl group, a has a value of less than or equal to 0.6, b has a value of zero or greater than zero, c has a value of greater than zero, d has a value

of less than 0.5, and the value of a + b + c + d = 1, and with the proviso that when each R^2 is methyl the value of b is less than 0.3; (C) up to 250 weight parts of an organic polyol; and (D) up to 10 weight parts of a cure rate modifier.

3. A urethane composition comprising: (A) 100 weight parts of at least one compound containing at least one isocyanate group; (B) 0.3-300 weight parts of a carbinol-functional silicone resin comprising the units:

$$(R^{1}_{3}SiO_{1/2})_{a}$$
 (i)

$$(R^2_2SiO_{2/2})_h$$
 (ii)

$$(R^3SiO_3/2)_c$$
 (iii) and

$$(SiO_4/2)_d$$
 (iv)

wherein R^1 and R^2 are each independently a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms, an aryl group, a carbinol group free of aryl groups having at least 3 carbon atoms, or an aryl-containing carbinol group having at least 6 carbon atoms, R^3 is an alkyl group having from 1 to 8 carbon atoms or an aryl group, a has a value of less than or equal to 0.6, b has a value of zero or greater than zero, c has a value of greater than zero, d has a value of less than 0.5, and the value of a + b + c + d = 1, with the proviso that when each R^2 is methyl the value of b is less than 0.3 and with the proviso there is on average at least one carbinol group per resin molecule; (C) up to 250 weight parts of an organic polyol; and (D) up to 10 weight parts of a cure rate modifier, where the mole ratio of carbinol groups to isocyanate groups is from about 0.8:1 to 1.2:1.

4 A urethane composition obtained by a method comprising reacting (A) at least one compound containing at least one isocyanate group; and (B) a carbinol-functional silicone resin comprising the units:

$$(R^{1}_{3}SiO_{1/2})_{a}$$
 (i)

$$(R^2_2SiO_{2/2})_b$$
 (ii)

$$(R^3SiO_3/2)_c$$
 (iii) and

$$(SiO_{4/2})_d$$
 (iv)

wherein R^1 and R^2 are each independently a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms, an aryl group, a carbinol group free of aryl groups having at least 3 carbon atoms, or an aryl-containing carbinol group having at least 6 carbon atoms, R^3 is an alkyl group having from 1 to 8 carbon atoms or an aryl group, a has a value of less than or equal to 0.6, b has a value of zero or greater than zero, c has a value of greater than zero, d has a value of less than 0.5, and the value of a + b + c + d = 1, and with the proviso that when each R^2 is methyl the value of b is less than 0.3, where the mole ratio of carbinol groups to isocyanate groups is from about 0.8:1 to 1.2:1.

5. A urethane composition obtained by a method comprising reacting (A) 100 weight parts of at least one compound containing at least one isocyanate group; (B) 3-300 weight parts of a carbinol-functional silicone resin comprising the units:

$$(R^{1}_{3}SiO_{1/2})_{a}$$
 (i)

$$(R^2_2SiO_{2/2})_b$$
 (ii)

$$(R^3SiO_3/2)_c$$
 (iii) and

$$(SiO_{4/2})_d$$
 (iv)

wherein R^1 and R^2 are each independently a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms, an aryl group, a carbinol group free of aryl groups having at least 3 carbon atoms, or an aryl-containing carbinol group having at least 6 carbon atoms, R^3 is an alkyl group having from 1 to 8 carbon atoms or an aryl group, a has a value of less than or equal to 0.6, b has a value of zero or greater than zero, c has a value of greater than zero, d has a value of less than 0.5, and the value of a + b + c + d = 1, and with the proviso that when each R^2 is methyl the value of b is less than 0.3; (C) up to 250 weight parts of an organic polyol; and (D) up to 10 weight parts of a cure rate modifier.

6. A urethane composition obtained by a method comprising reacting (A) 100 weight parts of at least one compound containing at least one isocyanate group; (B) 0.3-300 weight parts of a carbinol-functional silicone resin comprising the units:

$$(R^{1}_{3}SiO_{1/2})_{a}$$
 (i)

 $(R^2_2SiO_{2/2})_b$ (ii)

 $(R^3SiO_{3/2})_c$ (iii) and

 $(SiO_{4/2})_d$ (iv)

wherein R^1 and R^2 are each independently a hydrogen atom, an alkyl group having from 1 to 8 carbon atoms, an aryl group, a carbinol group free of aryl groups having at least 3 carbon atoms, or an aryl-containing carbinol group having at least 6 carbon atoms, R^3 is an alkyl group having from 1 to 8 carbon atoms or an aryl group, a has a value of less than or equal to 0.6, b has a value of zero or greater than zero, c has a value of greater than zero, d has a value of less than 0.5, and the value of a + b + c + d = 1, and with the proviso that when each R^2 is methyl the value of b is less than 0.3 and with the proviso there is on average at least one carbinol group per resin molecule; (C) up to 250 weight parts of an organic polyol; and (D) up to 10 weight parts of a cure rate modifier, where the mole ratio of carbinol groups to isocyanate groups is from about 0.8:1 to 1.2:1.

- 7. The urethane composition according to Claim 1 or 4 further comprising (C) an organic polyol.
- 8. The urethane composition according to any of Claims 1, 4, or 7 further comprising (D) a cure rate modifier.
- 9. The urethane composition according to any of Claims 1 to 8 wherein: the alkyl group is methyl;

the aryl group is phenyl;

the carbinol group free of aryl groups having at least 3 carbon atoms is selected from a group having the formula R^4OH wherein R^4 is selected from

- (1) a group having the formula - $(CH_2)_{x}$ where x has a value of 3 to 10,
- (2) -CH₂CH(CH₃)-,
- (3) -CH₂CH(CH₃)CH₂-,
- (4) -CH2CH2CH(CH2CH3)CH2CH2CH2-, and
- (5) a group having the formula -OCH(CH₃)(CH₂)_x- wherein x has a value of 1 to 10

and a group having the formula $R^6(OH)$ wherein R^6 is a group having the formula - $CH_2CH_2(CH_2)_xOCH_2CH$ - wherein x in each case has a value of 1 to 10; the aryl-containing carbinol group having at least 6 carbon atoms is a group having the formula R^5OH wherein R^5 is selected from

- (1) a group having the formula -(CH₂)_xC₆H₄- wherein x has a value of 0 to 10,
- (2) a group having the formula -CH₂CH(CH₃)(CH₂)_xC₆H₄- wherein x has a value of 0 to 10, and
- (3) a group having the formula $-(CH_2)_xC_6H_4(CH_2)_x$ wherein x has a value of 1 to 10.
- 10. The urethane composition of any of claims 1 to 9 where a has a typical value of 0.1 to 0.6, b has a typical value of 0 to 0.4, c has a typical value of 0.3 to 0.8, and d has a typical value of 0 to 0.3.
- 11. The urethane composition according to any of Claims 1 to 8 wherein the carbinol-functional silicone resin is selected from carbinol-functional silicone resins comprising the units:

 $((CH_3)_3SiO_{1/2})_a$

 $((R^2)CH_3SiO_{2/2})_b$ where $R^2 = -(CH_2)_3C_6H_4OH$

 $((C_6H_5)CH_3SiO_{2/2})_b$ and

 $(C_6H_5SiO_{3/2})_c$

carbinol-functional silicone resins comprising the units:

 $((R^1)(CH_3)_2SiO_{1/2})_a$ where $R^1 = -(CH_2)_3C_6H_4OH$ and

 $(C_6H_5SiO_{3/2})_c$

carbinol-functional silicone resins comprising the units:

 $((R^1)(CH_3)_2SiO_{1/2})_a$ where $R^1 = -(CH_2)_3C_6H_4OH$ and

(CH₃SiO_{3/2})_c,

carbinol-functional silicone resins comprising the units:

 $((R^1)(CH_3)_2SiO_{1/2})_a$ where $R^1 \rightarrow (CH_2)_3OH$ and

$$(C_6H_5SiO_{3/2})_{c}$$

carbinol-functional silicone resins comprising the units:

$$((R^1)(CH_3)_2SiO_{1/2})_a$$
 where $R^1 = -(CH_2)_3OH$

(CH₃SiO_{3/2})_c and

 $(C_6H_5SiO_{3/2})_c$

carbinol-functional silicone resins comprising the units:

 $((CH_3)_3SiO_{1/2})_a$

 $((R^2)CH_3SiO_{2/2})_b$ where $R^2 = -(CH_2)_3OH$

 $((C_6H_5)CH_3SiO_2/2)_b$ and

(C₆H₅SiO_{3/2})_c,

carbinol-functional silicone resins comprising the units:

((CH₃)₃SiO_{1/2})_a

 $((R^1)(CH_3)_2SiO_{1/2})_a$ where $R^1 = -(CH_2)_3OH$ and

(C6H5SiO3/2)c,

carbinol-functional silicone resins comprising the units:

 $((R^1)(CH_3)_2SiO_{1/2})_a$ where $R^1 = -CH_2CH(CH_3)CH_2OH$

 $((H)(CH_3)_2SiO_{1/2})_a$ and

(C₆H₅SiO_{3/2})_c,

carbinol-functional silicone resins comprising the units:

$$((R^1)(CH_3)_2SiO_{1/2})_a$$
 where $R^1 = -(CH_2)_3OH$

(CH₃SiO_{3/2})_c

wherein a has a typical value of 0.1 to 0.6, b has a typical value of zero to 0.4, and c has a typical value of 0.3 to 0.8.

- 12. The urethane composition according to any of Claims 1 to 11, wherein greater than 10 weight percent of the R¹+R²+R³ groups are phenyl.
- 13. The urethane composition according to any of Claims 1 to 12 wherein the urethane composition further comprises at least one ingredient selected from fillers, solvents,

plasticizers, pigments, colorants, dyes, surfactants, thickeners, heat stabilizers, leveling agents, anti-cratering agents, fillers, sedimentation inhibitors, ultraviolet-light absorbers, promoters, heat stabilizers, ultraviolet-light absorbers, and antioxidants.

- 14. The urethane composition according to any of Claims 1 to 13 wherein the urethane compositions further comprise at least one cell stabilizer and at least one blowing agent, and optionally chain extenders and crosslinkers.
- 15. The urethane composition according to Claim 14, wherein the cell stabilizer is a silicone polyether and the blowing agent is selected from water, liquid carbon dioxide, CFCs, HCFCs, HFCs, and pentane.